MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2017 / 2018

TAL 7011 – ARCHITECTURE OF LARGE SOFTWARE SYSTEMS

(All sections / Groups)

1 FEBRUARY 2018
8:00 P.M. – 10:00 P.M.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 5 pages (including cover page) with 5 Questions only.
2. Attempt **ANY FOUR** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please print all your answers in the Answer Booklet provided.

Question 1 (4 + 4 + 2 marks)

The Malaysian Immigration Department is developing a Web portal that can be accessed from other countries in order to facilitate the applications for visas to enter Malaysia. This system allows the applicants to submit their details and print a document that can be brought to Malaysian Embassies at their countries to facilitate the visa processing. Currently, all applicants have to complete a form manually and bring it to the embassies to be processed.

a) Draw the Architecture Business Cycle for this project. Describe the influences to the architect (state any assumptions if necessary).

b) Give TWO possible quality attributes for this system. Explain each quality attribute with a quality attribute scenario.

c) For each quality attribute, describe at least ONE effective tactic to achieve the quality attribute in the system.

Question 2 (2 + 5 + 3 marks)

Football Association of Malaysia requires a software application to be developed to manage football clubs, their members, and their players. The software will be implemented on the Web with a cloud-based architecture that has components for user interface (presentations), business processes, and data persistence.

a) Explain which architectural pattern would be suitable for this software application.

b) Describe the architectural pattern identified in Question 2(a), giving illustration on how it can be applied to the above-mentioned system.

c) Describe THREE possible architectural drivers for this software application.

Continued ...

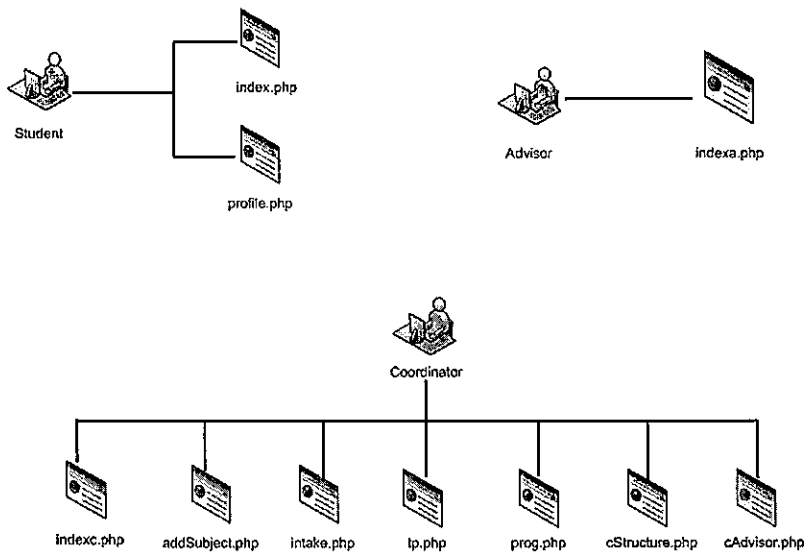
Question 3 (3 + 3 + 4 marks)

FCI is developing a Web-based Student Advisory System to support the advisor roles of lecturers. Advisors can access the system to view student details, and submit their remarks. A program coordinator enters course details, and students also access the system to enter their personal details.

The system will be deployed on a server with Internet connection and users of this system can use browsers on their computers to access the system through the Internet.

a) Produce a candidate view list for any THREE stakeholders of this project. Specify the level of details required for each view.

b) Given the following primary presentation of a view in the architecture of this system, write the element catalog based on this view, stating each element and its properties.



c) Draw a possible Deployment Diagram for this system. State any assumptions you may have, if you require additional information for the diagram.

Continued...

Question 4 (2 + 4 + 2 + 2 marks)

myComm Sdn Bhd is a leading telecommunications company supplying mobile phone services to its customers. Currently its system supports text messaging in addition to basic telephone services. In order to enhance its services, it is planning to add two additional subsystems to be integrated with its text messaging services:

- A Facebook subsystem for its users to send updates to Facebook
- A Twitter subsystem for its users to send 'tweets' to Twitter

a) Discuss the role of the software architect and the influence of other stakeholders in the development of the software architecture for this system.

b) Explain how the Jacobson use case technique can be used to handle the complexity of this system.

c) Discuss TWO possible problems with the use of this technique.

d) Assume that the architect planned the architectural model of the new system, and then assigns the work packages to the developers who develop the software using object-oriented technology. Describe ANY approach that can be used to map the architectural components to the objects and classes to be created by the developers.

Continued...

Question 5 (4 + 3 + 3 marks)

mySupplies Sdn Bhd is a medium sized company which supplies stationery to schools in Puchong. Initially, it started as a small shop and has grown due to the increase in business. Currently, it has a computerized system for Financial and Human Resources records for its Accounts and Human Resources departments.

The management of the company would like to computerize the activities of the Sales & Marketing department to keep track of the performance of the sales personnel and product sales.

a) Assuming that the additional new subsystem is purchased from another vendor, discuss TWO possible integration styles to integrate the Sales & Marketing system into the existing system.

b) Discuss the THREE quality attributes to be achieved in the new integrated, enterprise software system.

c) Discuss how Model Driven Architecture can be used to develop the enterprise software system.

End of Page